

OCEAN AND COASTAL FUTURES: THE GLOBAL CONTEXT

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The interaction of human society and the planet is a coupled nonlinear complex system. If you take complex systems apart and just study the parts, you miss some of the important phenomena; you have to look at the whole. So it is important to try to take an overview of how many factors interact—population trends, economic trends, social and political trends, environmental trends, security trends. I will emphasize environmental trends in these remarks, but will touch on others too, to answer two questions: What are the forces that are shaping our world in coming decades, and where would we like to end up? Can we envision some trajectories that will get us to the kind of world that we would like to pass on to our grandchildren?

As a society, we're not very good about looking ahead. Much of our economic decision-making is governed by the quarterly profit statement, and our political horizons rarely go much beyond the next election. Yet we're making choices, consciously or unconsciously, that are going to have generational implications: our use of energy and its implications for future climates, for example, or our loss of species and the implications for a more biologically impoverished planet.

Analysis of persistent trends can tell us a lot about the future—about constraints or plausible ranges of important variables. But trends are not destiny, and many important factors that govern the future cannot readily be quantified. So I also use scenarios to explore different trajectories into the future, scenarios that reflect radically different assumptions or world views about the future. Scenarios are not predictions, but they are powerful tools for thinking about the future precisely because we respond to them emotionally as well as cognitively. And that helps generate a process of making choices—it highlights and changes the way you think about the present in ways that might influence your actions.

I will discuss three scenarios—*Market World*, *Fortress World*, and *Transformed World*. They also turn out to be a good way to organize a discussion of key trends.

Market World is the vision of the future that points to the extended U.S. boom and the free market policies that have engendered it as a model for the world. It also points to the continuing technological revolution,

to the spread of democracy around the world, to widespread and rapid improvements in literacy, even to environmental improvements in many industrialized countries. It is a scenario that calls for downsizing government by privatizing and deregulating and asserts that free markets and the genius of the private sector will solve our

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problems and bring widespread prosperity. This world view is broadly held in corporate boardrooms and among high-tech entrepreneurs, and it is supported by many politicians. And markets do have the upper hand at the moment—they often dictate to governments, as Southeast Asia has recently found. Furthermore, economic reform and governmental downsizing have enormous momentum in many parts of the world. *Market World* is a powerful vision, because we suspect that at least parts of it are right—markets and the private sector will play a major role in the future. On the other hand, we also know that markets don't automatically solve environmental problems, and they don't solve equity or other social problems. In fact, they often make them worse.

Could unattended environmental and social problems undermine *Market World*? Populations are still growing rapidly, especially in the poorest parts of the world. Urbanization is occurring even more rapidly, with a million new urban residents a week worldwide. In China, for example, experts expect 300 million people to move from rural to urban areas between 1995 and 2010—the equivalent of all of North America moving to the city in 15 years. Can developing societies build the necessary housing and

other infrastructure rapidly enough? Will there be enough jobs in urban areas? And what about the environmental impact of hundreds of new megacities, many of them located in coastal areas and most of them with inadequate pollution control?

If we look at environmental trends more systematically, it is useful to focus first on those associated with industrial activity. Consumption of natural resources to produce the goods and services that our economies provide also produces pollution and waste. It turns out that it now requires annually about 80 metric tons of natural resources per person to support the U.S. lifestyle and the U.S. GDP, and a comparable amount in other industrial countries. As industrialization spreads around the world, how will natural resource consumption rise?

The conventional wisdom is that world energy consumption is likely to grow by a factor of 2.5, and manufacturing activity by a factor of 3, over the next half century. But with much of that growth concentrated in developing regions, the potential for increased pollution in those regions—

especially air pollution and toxic pollution—is much higher. And globally, if fossil fuels continue to be the primary source of energy, the impact of this consumption pattern will be rapidly rising atmospheric concentrations of greenhouse gases, suggesting that we may well find out what global warming and a changing climate are all about.

A second set of environmental trends are those associated with the degradation of Earth's biological systems. And these may have an even greater and more direct impact on human welfare, because as much as a third of the earth's population still depends directly on local environmental resources—what can be grown or gathered or caught—for most of their sustenance and livelihoods. Yet the trends suggest that soil loss is accelerating, that forests everywhere are at high risk of degradation, that many of the most biologically rich coral reefs are even now at high risk, and a majority of the world's marine fisheries are overfished and in danger of

severe degradation. And as populations rise, a finite amount of such renewable resources as fertile soil or water must serve more and more people. So the risk is for growing biological impoverishment, and for human impoverishment as well, not to mention the potential for growing resource conflicts.

In addition, if Market World fails to spread the wealth and improved welfare it generates to all of Earth's people, might we also have quite a large number of people who know more and more about how the rich live but who know that they don't have any chance to participate in such wealth or even to meet their basic needs? And might such people, in their frustration and even anger, become a vast recruiting ground for terrorism and fuel growing illegal migration? If there aren't enough jobs in the swelling cities of the developing world, might the result be growing crime and instability and the potential for violence? Might emergent diseases—some 30 in the past 20 years, most arising from the degraded ecosystems in developing countries—become an even greater global health threat? In short, might there be new security threats to cope with as well?

If you put all of these adverse trends together, the result is a different vision of the future, which I call *Fortress World*. The fortress imagery comes from thinking of islands of luxury and privilege surrounded by oceans of poverty and despair and environmental degradation. Whether on a small scale—like the high-rises on the beach at Rio surrounded by the shanty towns on the hills, or the gated communities that you see spreading in this country—or on a larger scale—the whole United States as an island of prosperity in an ocean of countries that are suffering, like Central America—the image is a powerful one.

Fortress World is a dark vision. It's certainly not a world that anybody wants to live in. But neither is it possible to dismiss it. Private security forces now outnumber the police by four to one globally, and by ten to one in places like South Africa and Russia. Think of how many places now where businessmen have to have bodyguards and send their kids to school in armored limousines—in Moscow, Mexico City, Hong Kong. Even the middle class in Colombia worry about kidnapping.

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Fortress World is a symbol of what's plausible but which we hope will not come to pass. What other options are there?

That leads me to what I call *Transformed World*. That's a vision that says we know we're going to need fundamental social and political reform to solve some of these problems. We need some new forms of governance, because we can't run a global economy without some form of regulation—the last year showed that all too clearly. And quite apart from such things as regulation, we need new ways of making decisions. We need to reform some of our institutions. We need some changes in values and behaviors. Transformed World is a scenario in which these things actually occur.

To some degree, such a scenario requires a leap of faith. But to a surprising degree, many of these transforming trends are already underway, at least in a preliminary form. And that offers both cause for optimism and an agenda for action.

Think about the remarkable change in attitudes towards smoking in the United States in the last ten years. Such changes in attitudes and behaviors are a source of great hope for the future. For instance, if the world decided that climate was important, we could find ways to solve the climate problem. Partly what is required is policy reform, but more fundamentally what is needed are changes of attitude, a new social and political consensus about where we want to go. Then the policies will follow.

Places like Poland and the Czech Republic have been essentially reborn with much more optimism and hope and progress, even though their physical problems haven't at all gone away. And such changes illustrate that political consensus and social attitudes can change very quickly and are absolutely important in determining what's going to happen.

Technology is also creating new options, new tools that can help, if we have the wit to use them creatively.

Still another hopeful trend is the rise of civil society: church groups, environmental groups, citizens organizations, nonprofit aid agencies, university students and faculty, and many others. Such non-governmental organizations (NGOs) already play an important role locally and nationally, and they are beginning to emerge as a force at an international level—delivering services, setting political and social agendas, brokering new forms of collaboration with

the private sector. A good example is the treaty to ban land mines that was passed last year, largely driven by a group of more than 700 NGOs around the world.

The Internet is empowering civil society in a unique way because it lets groups link together in coalitions. And civil society groups far outnumber both governments and major corporations, and their numbers are growing rapidly. In effect, civil society is forging a new form of governance, a new mode of social decision-making and consensus-building that may prove crucial in the decades ahead.

Finally, I want to point to the greening of corporations as a still preliminary but potentially very important transforming trend. Look at what happened on the climate front just in the last few months. Some 15 or 20 major global companies came out actively endorsing the need for a climate treaty: GM, BP, Monsanto, Dupont, and a host of others. In almost every case they had worked with a group of environmental NGOs, including my organization. The result is that these companies decided: (a) they could live with a climate treaty, (b) it was socially responsible to start acting as though that was going to happen, and (c) there was a tremendous business opportunity if they got out in front.

We're beginning to see corporations going beyond narrow compliance to take a leadership role, but that may accelerate. The larger the corporation, the more vulnerable it is to social expectations, and as companies understand that, they're increasingly going to realize that they can't afford not to be perceived as part of the solution, not part of the problem. And global corporations do have very unique capabilities, if they could be harnessed to help solve environmental and developmental problems.

So there are a number of reasons to have some faith in a Transformed World vision. And thinking about Market World, Fortress World, and Transformed World poses the question of what choices we need to make. What would shift us from one trajectory, one scenario, to another?

If we think about how these trends and these scenarios might play out focused on our coastal and ocean areas, I think you'll see that while there are some issues unique to the coastal zone, it is not possible to isolate oceans and coasts from the trajectory of the larger society. So if we want to understand the forces shaping these regions, we have to look very broadly, as I have tried to do here.